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Counsel for Plaintiffs

IN THE UNITED STATES DISTRICT COURT
DISTRICT OF MONTANA - BUTTE DIVISION

COTTONWOOD)
ENVIRONMENTAL LAW CENTER;)
MONTANA RIVERS; and GALLATIN)
WILDLIFE ASSOCIATION,)

Plaintiffs,)

vs.)

RON EDWARDS, in his official)
capacity as Manager of the Big Sky Water)
and Sewer District; and BIG SKY)
WATER AND SEWER DISTRICT,)

Defendants.)

Case No. 2:20-cv-00028-BMM

EXHIBIT 1



Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P. O. Box 200901

Helena, MT 59620-0901

(406) 444-2544

Website: www.deq.mt.gov

August 1, 2011

Mr. Ron Edwards, District Manager
Big Sky Water and Sewer District #363
PO Box 160670
Big Sky, MT 59716

Re: Big Sky Sewer District #363, Golf Course Nutrient Management Plan – Follow-up

Dear Mr. Edwards,

Thank you for facilitating our July 12, 2011 site visit, meeting with District staff, Taylor and Sam of Big Sky Resort/Boyne, your engineer Ray Armstrong, Todd Teegarden and myself. Everyone has made significant efforts to address the concern of nitrogen application on the golf course and water quality in the West Fork of the Gallatin in the Meadow Village area. We noted the following improvements & changes:

- a) The stream segment runs adjacent to holes 8, 9, 10, 11, 12 and a portion of 13. In addition to trees and shrubs along the river, new grass buffers have been and are continuing to be developed by golf course staff. Turf & native grass next to the stream is not being mowed along tees, fairways, and greens providing a natural buffer.
- b) Two drain tiles we viewed are believed to be silted in and were not producing runoff even during this wet spring. Where the drains terminate near the stream, soil barriers have been created to block direct discharge to the stream. According to golf course staff a couple of other drain tiles that were discharging have been removed.
- c) Man-made Fertilizer application is occurring only on main fairways, tees and greens and is not being applied in the rough or buffer areas near the river. Generally the setback from the stream is 50 feet or more to the points where Sam described fertilizer application is completed.
- d) Certain sprinkler heads on holes adjacent to the river have been changed from 360 degree to 180 or 90 degrees to provide a buffer along the stream and avoid direct application near or in the stream, maintaining the appropriate set-backs.
- e) Data provided by the Big Sky District reflects that nitrogen levels in the treated wastewater effluent have been lowered from an average of approximately 17 mg/l to 9 mg/l in the past year. This may not be the case for the more recent couple of months due to extreme high flows, but this statement generally characterizes the optimization of nitrogen removal that has been implemented by the District.

Following are draft Nutrient Management Plan (NMP) review comments from our letter to the District, dated 5/9/2011 and our follow-up comments, based from this site visit and project meeting (**in bold**). As stated previously, we concur with the details provided to date and hope a finalized NMP can be completed soon. NMP additions we suggested necessary for the proper management of irrigation were:

- 1. Manmade fertilizers used throughout the irrigation areas need to be tracked and restricted such that only the nitrogen needs of the turf are applied (i.e. if 100 #/acre of nitrogen is applied via the reclaimed water, then only and additional amount up to 50 #/acre of manmade

nitrogen fertilizer should be added per season to that area). Other macro fertilizer ingredients like potassium and phosphorus are not as critical, so if supplemental fertilizers are used, they may need to focus on these essential elements in lieu of high percentage nitrogen compounds. **Based on the information provided by Sam (course superintendent), they apply approximately 0.5 lbs of fertilizer per 1,000 sf to the course per growing season to enhance turf conditions. The product used contains 25% nitrogen. Our rough calculation estimate is that 5.5 lbs N/acre/year is applied via man-made fertilizer. This is not a significant amount if applied away from stream as indicated.**

Mulching of the grass into the fairway and tee box turf is practiced and grass clippings are not generally removed. Follow-up research we have conducted over the past couple of months suggests that 20% of the applied nitrogen is returned to the soil over time when mulching of turf is practiced. This results in approximately 36 lbs N/acre/year contribution from the mulch. Subtracting the above nitrogen values from the design turf grass needs of 150 lbs N/acre/year, results in an allowable application of 108 lbs N/acre/year in reclaimed effluent, over the 180 acres. Please have your engineer review this approach and provide his thoughts.

2. The NMP should include a fairly detailed map showing all areas where irrigation is allowed and clearly defining setbacks necessary to protect properties and resources. Ray mentioned that this was being developed, but was not able to electronically forward. **Please include and forward this map to DEQ.**
3. Recordkeeping needs to be established in a manner that accommodates review during a routine site inspection by the Department or others as appropriate. Since the District is the approved entity, those records should be gathered and retained at the District offices. This should include recording daily effluent volumes delivered to irrigation along with daily recordings of the area irrigated. Lysimeter and groundwater monitoring records should also be kept available at the District offices. Supplemental fertilizer used by the grounds crew with area applied should be recorded and available. **Please include and supply 2010 & 2011 data, available to reflect and help document the volumes and nitrogen application rates to the north and south loops. (See bold comment in #5 below).**
4. Weather events such as heavy rain or high wind should be recorded and this log should reflect that no irrigation occurs on those dates. **We support and encourage installation of an automated weather station at the golf course to allow for irrigation adjustments during changing weather conditions.**
5. Table 1 (separate 3-page attachment to this letter) provides the irrigation manager with a tabular irrigation schedule. It would be generated from a design TN concentration, so will require predicting an average plant effluent concentration throughout the year. TN of 15 mg/L was used in the design of the plant originally and probably should be used as the average, until a year worth of data reflects that a lower level can be consistently achieved. **As discussed at the meeting, daily information will be tracked by the District and submitted to DEQ at the end of the irrigation season annually. Please send DEQ data you have, for this year with respect to flows to the N & S loops, areas covered in rough acres, effluent TN & TP values delivered.**

Additional new items discussed during the site visit and recommended are:

6. Please consider installing or using a few lysimeters throughout the golf course, instead of soil sampling, to get information on leaching water quality. We recognize the existing lysimeters may be impractical to use, but if your engineer has an idea for a more modern lysimeter with a convenient sampling approach, we encourage this additional tool.
7. There may be nutrient impacts (algae growth) in Crail Creek where it has been channelized to the NW of the driving range and west of the maintenance building into the West Fork. Any information that could be obtained regarding water quality in this ditch would be helpful. It appears, and it was confirmed on-site, that golf course irrigation water is not applied in the immediate vicinity of the ditch. The sprinkler laterals adjacent to the ditch are not currently functional. The nearest functional laterals are several hundred feet to the west. There appears to be a significant amount of pond water and storm water that drains to this ditch from the Condo development that may be causing impacts.
8. There was a small spring or stream channel that surfaces just behind the Chapel under a large cottonwood via a culvert into a small ditch. It appears to empty into the pond north of the District office building. If monitoring of that stream segment is taking place it would be useful information to gather. If not, it may be a good location to perform some sampling to determine water quality characteristics.
9. We encourage reclaimed water irrigation be maximized in the peak summer months (primarily July & August). We also encourage irrigation with reclaimed water on all turf and rough areas away from surface water and on other irrigable acreage owned by Boyne that has existing laterals and spray equipment. We do recognize that there will be unusually wet years like this year, where effluent will need to be applied early to reduce the pond volumes to accommodate high flows. We encourage the most complete drawdown of the storage ponds during the growing season to ensure there is some storage cushion in the early irrigation season to allow for a ramping up approach during the average year.

As mentioned earlier by e-mail, we expect this NMP to be a living document that gets amended as changes occur. We are certainly asking for your input and look forward to hearing back soon. Thank you for considering this additional clarification based on the site visit and meeting.

Please don't hesitate to give Todd or myself a call should you need clarification or want to discuss further. Again, thank you for your hospitality during our visit and please relay our thanks to Taylor, Sam and Grant for their hospitality and assistance as well. It was pretty clear from the site visit that the District and Boyne do want to work with the Department to ensure the continued viability of the irrigation system.

Sincerely,



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Cc: Ray Armstrong, Dowl/HKM Engineering Inc., Billings
Todd Teegarden, DEQ PPAD, Helena
Jenny Chambers, DEQ PCD, Helena
Robert Ray, DEQ PPAD, Helena
Taylor Middleton, Big Sky Resort General Manager, Big Sky
Sam Woodger, Big Sky Resort golf course superintendent, Big Sky